

10. Report on the Deaths which occurred in the Society's Gardens during 1922. By N. S. LUCAS, M.B., F.Z.S., Pathologist to the Society.

[Received January 26, 1923 : Read February 20, 1923.]

On January 1st, 1922, there were 696 mammals in the Gardens, 1878 birds, and 759 reptiles.

During the year 459 mammals, 1026 birds, and 334 reptiles have been added, making a total for the year of 1155 mammals, 2904 birds, and 1093 reptiles.

Of the 1155 mammals	320	have died,	giving a percentage of	27.7.
" 2904 birds	583	" "	" "	20.0.
" 1093 reptiles	237	" "	" "	21.6.

The percentages for 1921 were 21.4, 20.4 and 24.5.

" " " 1920 " 32.1, 24.3 " 20.1.

If only those animals are considered which have lived in the Gardens for more than six months 167 mammals have died and 95 reptiles.

This gives a percentage for mammals of 14.4.

" " " " reptiles " 8.6.

The percentage for 1921 was 10.0 for mammals.

" " " 1920 " 16.9 " "

" " " 1921 " 8.1 for reptiles.

" " " 1920 " 4.5 " "

For the reasons given last year, it is impossible to give this percentage accurately for birds.

From these figures it would appear that the warm, dry summer of 1921 was distinctly beneficial to the mammals.

It has been felt for some time that the death rate in the unacclimatized mammals has been unduly high. It is hoped that the reservation of a special room in the Sanatorium, where small mammals and birds can be kept under conditions of extra care and attention, will do something to lower the death rate among new arrivals.

It is satisfactory to note that the death rate among the mammals from tuberculosis is still falling. The number of deaths among birds from this disease has risen. This is probably due to the large numbers of birds now in the Gardens. Especially is there crowding in the Western aviary, for of the 31 deaths from avian tuberculosis, 17 have occurred in that aviary. The figures for nephritis still continue low. The two diseases which have accounted for the highest numbers of mammals and birds are congestion of the lungs and enteritis.

Of these, the former represents a state where the lungs contain a great quantity of blood and are darker than normal. They may even reach the stage of being a dull red purple, but they are

still aerated, in contradistinction to pneumonia, where they are consolidated.

The latter represents a state of affairs where the alimentary tract shows various stages of inflammation, varying from bright red to purple, with sloughing of the mucous membrane.

The rarity of pleurisy among mammals referred to in my report for 1920 is still maintained. There have been no cases of this disease in either 1921 or 1922.

Table of Causes of Death.

Causes of Death.	Mammals.	Birds.	Reptiles, etc.	Numbers referring to Notes.
<i>Pulmonary disease.</i>				
Pneumonia	35	30	6	
Congestion of lungs	51	73	22	
Edema of lungs .....	...	1	...	
Abscess of lungs .....	...	1	...	
Acariasis of lungs	1	...	...
Empyæma	2	...	...	1
Bronchitis	22	21	6	
<i>Cardiovascular.</i>				
Pericarditis	1	7	1	
Anæmia .....	...	2	4	
Ruptured mesenteric artery	1	...	...
<i>Renal disease.</i>				
Nephritis	9	11	2	
Granuloma of adrenal	1	...	...	2
<i>Alimentary Tract.</i>				
Abscess of mouth	1	...	1	
Stomatitis .....	...	...	3	
Acute dilatation of proventriculus .....	...	2	...	3
Gastritis	3	...	4	
Gastro-enteritis	16	1	16	
Enteritis	50	185	24	
Constipation	1	1	...	
Intussusception	1	...	...	4
Gastric ulcer	1	...	...	5
Strangulated hernia	1	...	...
Prolapse of bowel	1	...	...
<i>Hepatic.</i>				
Fatty degeneration of liver .....	...	4	...	
Cirrhosis of liver	2	1	...	
Necrosis of liver .....	...	1	...	
Granuloma of liver .....	...	...	1	
Portal pyæmia .....	...	4	...	
Jaundice ? cause	1	1	...	
Tumour of liver ? nature .....	...	...	1	
<i>Pancreatic.</i>				
Pancreatitis	4	...	...
<i>Genital organs.</i>				
Egg-binding .....	...	5	...	
Inflamed oviduct .....	...	6	...	
Prolapse of oviduct .....	...	1	...	
Accidents of labour	3	...	...

Table of Causes of Death (cont.).

Causes of Death.	Mammals.	Birds.	Reptiles, etc.	Numbers referring to Notes.
<i>Nervous System.</i>				
Convulsions ? cause	1	...	...	6
Paralysis ? cause.....	1	...	...	7
Delayed shock	1	...	...
<i>Acute Infections.</i>				
Tuberculosis	13	31	...	
Mycosis.....	...	26	...	
Septicæmia	20	8	3	
General serositis	1	...	...	8
Helminthiasis	4	2	3	
Osteomyelitis of jaw	1	...	...	9
Peritonitis	1	2	...	
Protozoal infection .....	...	1	...	10
Tick infection .....	...	...	1	11
<i>Malignant disease.</i>				
Carcinoma of thyroid	3	...	...	12
Sarcoma of liver .....	...	1	...	13
Carcinoma of liver	1	...	...	14
<i>Disease of Thyroid.</i>				
Adenomatous cyst .....	...	1	...	15
Colloid goitre .....	...	1	...	16
<i>Miscellaneous.</i>				
Inanition ? cause	1	3	21	
Rickets	3	...	...
Scurvy?	2	...	...	17
Asphyxia .....	...	1	...	
Drowned .....	...	1	...	
Exposure .....	...	1	...	
Killed	19	79	4	
Under anæsthetic	1	...	...
Destroyed by rats .....	...	11	1	
Not diagnosed.....	3	13	12	
Not examined.....	21	7	25	
Decomposed.....	14	34	65	

Explanatory Notes on the Causes of Death.

1. One case was that of a hyæna. A sharp piece of bone had perforated the stomach, the diaphragm, and pleura so that the gastric contents had escaped into the pleural cavity.

The other case was that of a Napu mouse-deer.

2. In a rufous-tailed fire-back pheasant.
3. Both of these cases were birds of prey which had over-gorged themselves.
4. In a green cercopitheque.
5. These were small craterous ulcers in the rumen of a gazelle, There was also one ulcer in the reticulum.
6. This was in a Caucasian ibex.
7. In a bear.

8. A fishing-cat on post-mortem showed inflammation with exudation of clear fluid in all its serous cavities. It was apparently chronic, as the peritoneum over the liver showed ciliated epithelium.
9. This was a chronic condition in a jungle-cat. The stomach showed extensive secondary ulceration.
10. A sarcocystus infection in a Chinese quail.
11. In a hamadryad.
12. Two of these cases were in wolves and one in a jackal. All showed secondary deposits in the lung.
13. In a hybrid pheasant and Wyandotte hen.
14. In a wolf, apparently primary.
15. In a Cayenne rail. It was spherical and 2 cm. in diameter. It caused death by compression of the thoracic viscera.
16. In a Mandarin duck.
17. In a blackbuck. This had been bred in the Gardens and had produced a young one, which had died a short time previously and shown similar but much less extensive signs of the disease. For a long period there had been no change in the feeding, which seems to have been satisfactory from the vitamine point of view.